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REMARKS

In this reply, there are no amendments to the claims. Accordingly, claims 1-31 remain present in this application. Applicant respectfully requests reconsideration and allowance of the present application.

In the Office Action, the Examiner indicated that WO9947384 PCT cited in PTO-1449 form with the Information Disclosure Statement was not considered because a copy was not provided. Applicant is submitting herewith a Supplemental Information Disclosure Statement citing and enclosing a copy of the missing document for consideration by the Examiner.

Claims 1-31 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,192,305 to Schiffmann. Applicant submits that the claims are not anticipated by Schiffmann for the reasons discussed below.

Before discussing the rejection of the claims, it is important to appreciate Applicant's invention and the advantages realized therefrom. The present invention provides for a roll angle estimation apparatus and method for predicting a future roll angle of a vehicle and a rollover sensing apparatus for predicting an overturn condition of a vehicle. The roll angle estimation apparatus includes an angular accelerometer for sensing angular acceleration of a vehicle and producing an output signal indicative thereof. Additionally, the roll angle estimation apparatus includes an integrator for integrating the sensed angular acceleration signal and producing an angular rate. Further, the apparatus includes a predictor for predicting a future roll angle of the vehicle as a function of the sensed angular acceleration, the angular rate, and a current roll angle. The rollover sensing apparatus further includes a comparator for comparing the predicted future roll angle to a threshold value and an output for generating an output signal indicative of an anticipated vehicle overturn condition prediction based on the comparison. By employing the angular accelerometer, the apparatus enables early decisions to be made with high confidence through increased accuracy of extrapolated vehicle rotation.

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In contrast, the Schiffmann patent discloses a rollover sensing apparatus for predicting rollover or pitchover conditions of a vehicle. The apparatus is shown employing three accelerometers, namely a lateral accelerometer 14, a longitudinal accelerometer 18 and a vertical accelerometer 20, in addition to a roll angular rate sensor 12 and a pitch angular rate sensor 16. Each of the accelerometers employed in Schiffmann are linear accelerometers. The Schiffmann patent, which is assigned to the assignee of the present application, does not employ an angular accelerometer.

In order to anticipate a claim, the prior art reference must teach each and every limitation of the claim. The Schiffmann patent employs three linear accelerometers, namely the longitudinal, lateral and vertical accelerometers, none of which operate as an angular accelerometer. The Examiner stated that Schiffmann discloses a roll angle estimation apparatus comprising an angular accelerometer for sensing angular acceleration of a vehicle and producing an output signal indicative thereof, citing column 1, lines 40-53. Applicant notes that column 1, lines 40-53 of Schiffmann discusses the use of six sensors including three accelerometers and three angular rate sensors, and the three accelerometers generally provide lateral, longitudinal and vertical acceleration measurements of the vehicle, none of which are angular acceleration signals. The Examiner may have confused the angular rate sensors of Schiffmann with the linear accelerometers when, in fact, the Schiffmann patent does not employ an angular accelerometer.

Accordingly, the Schiffmann patent does not teach each and every limitation of independent claims 1, 10, 18 and 25, and the rejection of claims 1-31 under 35 U.S.C. §102(b) based on Schiffmann should therefore be withdrawn, which action is respectfully solicited.


By way of the foregoing discussion, Applicant has demonstrated that the claims are not anticipated by the Schiffmann patent, and the rejection of claims 1-31 under 35 U.S.C. §102(b) should therefore be withdrawn.

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In view of the above remarks, it is submitted that claims 1-31 define patentable subject matter and are in condition for allowance, which action is respectfully solicited. If the Examiner has any questions regarding patentability of any of the claims, the Examiner is encouraged to contact Applicant's undersigned attorney at the Examiner's convenience.

Respectfully submitted,

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